

T. S. Dye & Colleagues, Archaeologists, Inc.

735 Bishop St., Suite 315, Honolulu, Hawai'i 96813

Archaeological and Architectural Surveys and a
Cultural Impact Assessment for Three Parcels at
Wailua Homesteads, Kaua'i
TMK: (4) 4-2-003:012, 066, and 065

Thomas S. Dye, PhD

Wendy Wichman

Kristin M. Macak

June 16, 2009

Contents

1	Introduction	2
2	Background	2
2.1	Natural Setting	2
2.2	Traditional and Historic Land Use	4
2.3	Previous Archaeological Investigations	7
3	Archaeological Survey	9
4	Cultural Impact Assessment	14
5	Conclusions	17
A	Architectural Inventory Survey Report	19
	Bibliography	43

Abstract

At the request of Landmark Consulting Services, T. S. Dye & Colleagues, Archaeologists, Inc. and Mason Architects, Inc. have completed archaeological and architectural surveys and a cultural impact assessment of the 'Ōpaeka'a Falls Land Co. parcels located within the Wailua Homesteads subdivision on the island of Kaua'i. A residence designed by Vladimir Ossipoff for Dr. Jay M. Kuhns and his wife Eula, constructed in 1939, and its servants' quarters are determined eligible for listing on

the National Register of Historic Places under criterion C. A single traditional Hawaiian site consisting of numerous abrader basins on boulders in 'Ōpaeka'a Stream has been assigned state site number 50-30-08-5029. A possible 'auwai on marsh land adjacent to 'Ōpaeka'a Stream, and within the building setback and drainage-way, as designated on the proposed consolidation and resubdivision map, was also noted. The subdivision and re-consolidation of the 'Ōpaeka'a Falls Land Co. parcels poses no potential cultural impacts. No native Hawaiian rights are known to be associated with the 'Ōpaeka'a Falls Land Co. parcels, so no actions need to be taken to protect them.

1 Introduction

At the request of Landmark Consulting Services, T. S. Dye & Colleagues, Archaeologists, Inc. and Mason Architects, Inc. have completed archaeological and architectural surveys of the 'Ōpaeka'a Falls Land Co. parcels located within the Wailua Homesteads subdivision on the island of Kaua'i. The 'Ōpaeka'a Falls Land Co. parcels consist of 39.81 ac. and are identified on tax maps as TMK: (4) 4-2-003:012, 065, and 066. The Nonou Forest Reserve borders to the north, and Wailua Bay is located ca. 2 mi. to the east. (fig. 1). The goal of the survey was to provide an assessment of historic properties at these parcels, including an Ossipoff-designed residence built for Dr. Jay M. Kuhns and his wife Eula in 1939, the servants' quarters for the Kuhns residence, various outbuildings and any traditional Hawaiian sites that might be found on the surface. In addition, an assessment of the potential for discovering subsurface traditional Hawaiian historic properties was performed.

The archaeological work was carried out by Dr. Thomas S. Dye, a qualified archaeologist (§13-281-3), assisted by Kristin Macak on February 18 and 19, 2009. A follow-up field visit was performed by Dye on April 31, 2009, assisted by Randy and Victoria Wichman, who graciously provided the benefit of their close knowledge of the 'Ōpaeka'a Falls Land Co. parcels gained during an extended period of residence in the Kuhns house. The architectural survey of the Kuhns house, and its outbuildings and servants' quarters was performed by Wendy Wichman of Mason Architects, Inc. Wichman's architectural inventory survey report is included as appendix A.

2 Background

The background research includes the review of historic documents, maps and archaeological reports on file at the State Historic Preservation Division library (SHPD), the Hawaii State Library and the State Bureau of Conveyances.

2.1 Natural Setting

The 'Ōpaeka'a Falls Land Co. parcels are located in the uplands of Wailua *ahupua'a* between the north fork of Wailua River, and the Nonou Forest Reserve ridge (fig. 2). A portion of 'Ōpaeka'a Stream runs through the project parcel. The elevation within the project area ranges from 220 to 340 ft. above sea level. Four distinct soil types are found

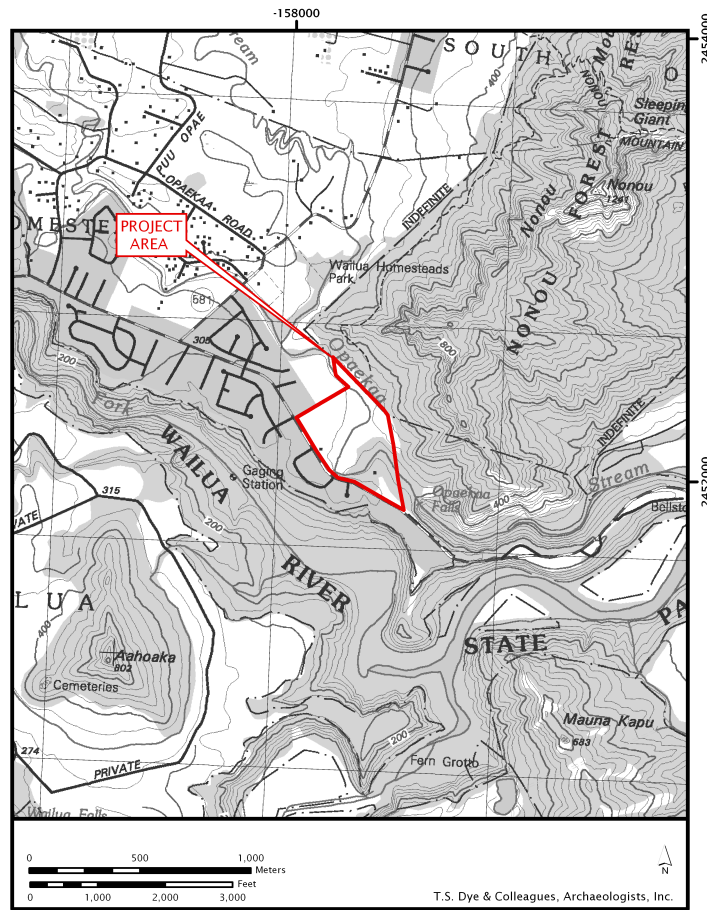


Figure 1. Location of 'Ōpaekā'a Falls Land Co. parcels on a portion of the USGS 1983 Kapaa Quadrangle.

across the 'Ōpaekā'a Falls Land Co. parcels. Marsh land is located along the 'Ōpaekā'a Stream bottom which crosses the property and is subject to periodic flooding (MZ), while rough broken land characterizes the hillsides (rRR) [20]. The central portion of the property is covered with Puhi series soil, developed in material derived from basic igneous rock. This series is typically used for sugarcane, pineapple, pasture, water supply, truck crops or orchards. The southern portion of the 'Ōpaekā'a Falls Land Co. parcels, where the existing Ossipoff-designed Kuhns Residence is located, is characterized by Hanamaulu Series silty clay with 25–40 percent slopes (HsE). This series consists of soils traditionally used for pasture, woodland, and water supply. The area receives 60–80 in. of rainfall annually [9] (fig. 3).

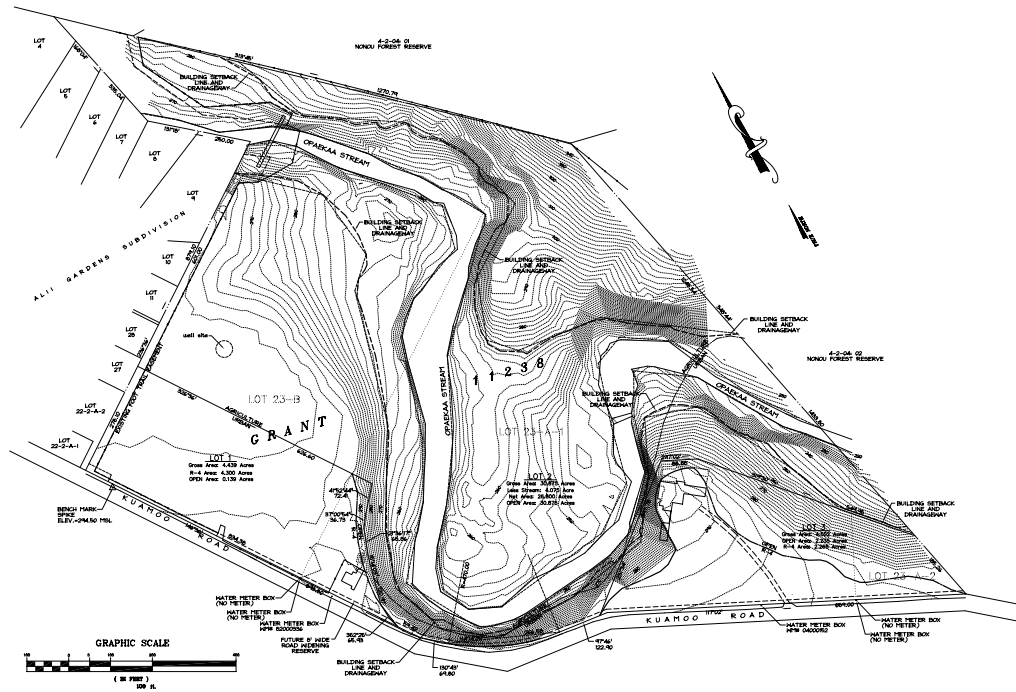


Figure 2. Survey map showing the consolidation of Lots 23-A-1, 23-A-2, and 23-B and re-subdivision of said consolidation into Lots 1, 2 and 3. Note the building setback line and drainage-way around Ōpaeka'a Stream. Map prepared by Esaki Surveying and Mapping, Inc.

2.2 Traditional and Historic Land Use

The physical environment, historic properties, and history of Wailua *Ahupua'a* have been well documented in several studies [7; 11; 14; 15]. The following information is a brief review that provides context for the project.

Wailua is located along the east side of Kaua'i Island in the traditional district of Puna. Wailua stretches from the shoreline to its *mauka* extent at Wai'ale'ale, and encompasses most of the small streams and tributaries that flow into the Wailua River [13:425]. Pukui et al. [18], translate Wailua, as “two waters,” referring to the two main forks that flow together to form the Wailua River. Wichman [22:67–68] notes that there are several possible translations of the name, Wailua, including “spirit of a ghost” and “spirit of one seen before or after death, separated from the body.” Night marchers in Wailua were said to have taken canoes from the river to the other side of the island. Dickey [4] speculates that the name of the *ahupua'a* originated from the name of high chief Wailuanuiāho'ano of O'ahu. The Hawaiian historian, Samuel M. Kamakau, described this high chief:

Wailuanui-a-Ho'ano was born in 'Ewa, O'ahu, and his descendants went to Kaua'i and to Maui, and wherever they settled they called the land after the

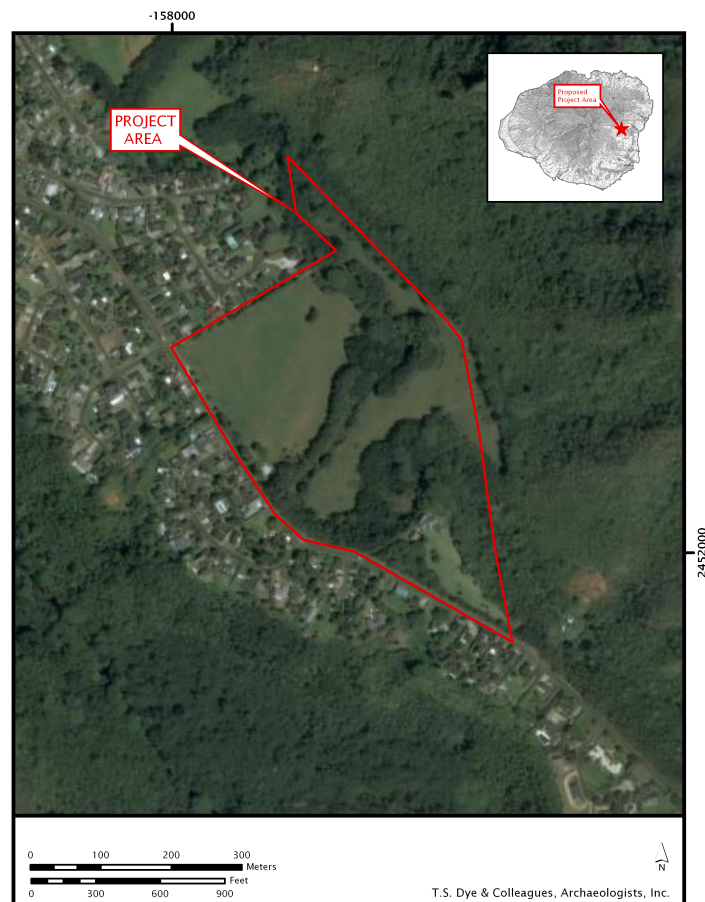


Figure 3. Overview showing the location of the ‘Ōpaekā’a Falls Land Co. parcels. Satellite imagery adapted from Google Earth.

name of their ancestor. Wailua was a song of La‘akona, ancestor of the ‘Ewa family of Kaho‘aho-o-Kalani. His name, Wailuanui-a-Ho‘ano, came from adding the name of his mother. [16:7]

Wichman notes that Wailuanuiaho‘āno was a portion of Wailua Ahupua‘a that included the land on either side of the river “to the top of the range that divided the shore from the uplands” [22:63]. A *kapu* was placed on Wailuanuiaho‘āno by Punanuikaia‘āina, a leader of the Marquesan settlers of Hawai‘i. This area, which includes the ‘Ōpaekā’a Falls Land Co. parcels within its *mauka* boundary, was “a seat of the royal family and center of all religious life” [22:63].

The famous *kupua*, Kawelo, had a series of battles near Nounou [1; 19]; although the ‘Ōpaekā’a Falls Land Co. parcels aren’t referenced directly, the story of the battles ranges over a wide area that could plausibly include them. In some versions of the wooing

kapu

kupua

romance of Kaililauokekoa, granddaughter of Moikeha, which takes place from one end of Wailua to the other, a battle ends with the escape of the *kupua*, Pi'ikalalau, up a steep cliff that might be in the vicinity of the 'Ōpaeka'a Falls Land Co. parcels [1; 19].

Prior to western contact, Wailua was known as an important center of religious, economic, and social activity. Wailua was the principal home, as well as the administrative and religious center of the high chiefs of Kaua'i. Its importance as a royal center is confirmed by the numerous places of importance in the area including several *heiau*, the birth stones of the *ali'i*, and a historic coconut grove. Hoffman et al. [14] and Joesting [15] provide a thorough overview of the traditional and historic setting of Wailua and describe the area as one of the most favorable places to live in ancient times.

Within a small area Wailua offered most of the good things the ancient Kauaians desired. There was fresh water in abundance, and the ground was fertile, ideal for taro, yams and bananas. The *kou* tree gave shade, its trunk often carved into bowls. The coconut tree was a source of food, utensils, and fiber. There were many bushes bearing the small yellow 'ilima flowers used for *lei*, or wreaths. Varieties of red and white sugarcane were used by religious *kahuna*, or priests, as love potions. White sugarcane was used by the Kauaians in medicinal preparations. The ocean offered fish and other forms of seafood. It is little wonder that the rulers of Kauai, at some very early time, decided that Wailua was the most fitting place to establish their capital. It was a garden of plenty. [15:6]

Handy discusses the planting of sweet potato on the coastal plain of Wailua:

Kapa'a, Waipouli, Olohena, and Wailua are districts which have broad coastal plains bordering the sea, any part of which would be suitable for sweet potato plantings; presumably a great many used to be grown in this section. There are a few flourishing plantations in Wailua at the present time ... Along the lower 2 miles of Wailua River, above the sandy coastal plain, are many broad, open, level areas, formerly in terraces, now mostly in sugar. 'Ōpaeka'a Stream, which flows into tidewater Wailua River, watered many terraces both above and below the falls. The large area of terraces below the falls is now planted mostly in rice, a few of the upper terraces being used for sweet potatoes, while the uppermost are pasture. [13:153, 425]

Traditional agriculture dissipated with the influx of the sugar industry. Evidence of terracing gradually disappeared as districts were cultivated for rice, sugar cane, sweet potato, and pasture. Trade ships anchored at Wailua, Kapa'a, and Waimea Bays to provide accessible transport for the sandalwood, sugar, and cattle industries. Agricultural development resulted in a decrease in cultural practices of the region as evident by the lack of claims to Wailua land during the Māhele [11:16].

During the Māhele, 51 parcels were awarded to 27 claimants in Wailua. The awards comprised ca. 75 ac. and included *lo'i*, *mo'o*, *kula* land, and house lots. All of the parcels were located within ca. 1 mi. of the shoreline. The *kuleana* awardees originally received their land from Debora Kapule, a fact that Hoffman et al. have interpreted as

indicating a rather short tenancy since around 1825 or later. It is generally understood that following the suppression of the Kaua'i Rebellion of 1824

Māhele

mo'o
kula

by the forces loyal to Kamehameha II, there was a massive redistribution of Kauaʻi lands. Apparently when Debora Kapule received the Wailua lands from Kaʻāhumanu, she served as *konohiki* (overseer) for the *ahupuaʻa*, or in her own words, the *hakuʻāina* or landlord. In Wailua, she claimed a house lot, taro patches and two fishponds. [14:13]

No *kuleana* in the vicinity of the ʻŌpaekaʻa Falls Land Co. parcels were awarded by the Land Commission during the Māhele. This area was recognized as Government land that was later subsumed by the Territory of Hawaiʻi. In 1917, the Territory of Hawaiʻi established the Wailua Homesteads along Wailua River, north and west of ʻŌpaekaʻa Falls. The Homesteads comprised 38 lots, a school lot, and 2.5 mi. of road, totalling 1261.4 ac. In 1918, T.B. Bush resurveyed the property and redistributed the area into 31 lots, school lots, roads, and railroad tracks, totalling 1,082.5 ac. The ʻŌpaekaʻa Falls Land Co. parcels were identified in aggregate as Lot 23 of Wailua Homesteads, 1st Series, 39.85 ac. [8].

Modern land records indicate Lot 23 of Wailua Homesteads, 1st Series was acquired by Mrs. Eula Urban Kuhn in 1945 through Land Patent No. 11238.¹ The boundaries of Lot 23 were revised in 1963, and the parcel size increased slightly, to 39.86 ac., as a result. The land was subdivided at this time into Lot 23-A-1 (22.27 ac.), Lot 23-A-2 (1.01 ac.), and Lot 23-B (16.58 ac.) “excepting and reserving all rights to ʻŌpaekaʻa Stream.” The three new lots were identified as TMK: (4) 4-2-003:012, 066, and 065, respectively. In 1964, the 39.86 ac. were collectively deeded to Hale Kauaʻi, Ltd, which later became known as the largest home and construction supply company of Kauaʻi.² In 1973, a 0.042 ac. portion was dropped to create an adjacent road, bringing the parcel size to 39.818 ac.³ In 1988 Hale Kauai, Ltd lost a small portion of Lot 23-B to the State of Hawaii for the construction of a public access foot trail located between the borders of the original Lot 22 and Lot 23 of the Wailua Homesteads, 1st Series. Hale Kauai, Ltd maintained the lots until 2005 when they granted the subdivided Lot 23-A-1, Lot 23-A-2, and Lot 23-B to the current owner, ʻŌpaekaʻa Falls Land Co LLC.

2.3 Previous Archaeological Investigations

No previous archaeological investigations have been conducted within the ʻŌpaekaʻa Falls Land Co. parcels, however several historic properties have been recorded within Wailua *ahupuaʻa* [7; 10; 11; 14]. During a survey of the island of Kauaʻi in the 1920s, Bennett [2] recorded several *heiau* in the area of the Wailua River. These sites are identified as the Wailua Complex of Heiau (State site 50-30-08-502), and are listed on the National and Hawaii Registers of Historic Places, and are also designated a National Historic Landmark. The complex, located along the mouth of Wailua River, is composed of five discontinuous properties, Hikinaakalā *heiau* including Hauola and associated petroglyphs, Malae *heiau*, Holoholokū and Pōhaku Hoʻohānau (the royal birth stones), Poliʻahu *heiau*, and the bell stone. The site complex is considered significant under all the National Register Criteria—A, B, C and D—and is recognized as one of the most significant site complexes

¹Bureau of Conveyances, Liber 74, page 149.

²Bureau of Conveyances, Liber 4784, page 465.

³Bureau of Conveyances, Liber 8811, page 216.

in Hawai'i. The nearest feature within the Wailua Complex of Heiau is Poliahu *heiau* located ca. 0.5 mi. southeast of the 'Ōpaeka'a Falls Land Co. parcels.

Kukui *Heiau* (State site 50-30-08-108), listed on the National and Hawaii Register of Historic Places, is also located along the coast ca. 2 mi. northeast of the 'Ōpaeka'a Falls Land Co. parcels. Bennett also recognized that human remains were known to be buried in the sand dunes that extended between Hanamā'ulu and Wailua River (State site 50-30-08-103).

Since Bennett's survey, most of the archaeological investigations within Wailua have been conducted in the coastal portions of the *ahupua'a*, a little less than 2 mi. east of the 'Ōpaeka'a Falls Land Co. parcels. Historic properties found along the shoreline areas, besides the Wailua Complex of *heiau*, include human burials, lithic scatters and buried cultural deposits.

In 2008, Drennan [5] conducted an archaeological inventory survey with subsurface testing of a 240 ac. parcel for a proposed Department of Hawaiian Home Land residential subdivision, located 0.85–1.6 mi. southeast of the 'Ōpaeka'a Falls Land Co. parcels. The survey identified three new sites consisting of nine features.

State Site 50-30-08-5012 consists of water diversion and irrigation features associated with historic period sugar cane cultivation of the area.

State Site 50-30-08-5013 is a traditional Hawaiian lithic scatter, found in four different loci across the 240 ac. project area. Basalt artifacts included adze fragments and preforms, hammer-stones, as well as basalt flakes. This site is located near Malae *heiau* and may be associated with the use of that site.

State Site 50-30-08-5014 consists of a complex consisting of two rock terraces, a rock wall, and an enclosure. Further work was recommended in order to determine the origin and function of the site.

Subsurface testing did not identify any other historic properties within the survey area.

Archaeological investigations have also been conducted within the grounds of the Coco Palms Resort, located ca. 1.7 mi. east of the 'Ōpaeka'a Falls Land Co. parcels. In 2004, Hoffman et al. [14] conducted an archaeological inventory survey with subsurface testing at the Coco Palms Resort parcel. Three historic properties were identified during the survey; a discontinuous pre-contact cultural layer (State site 50-30-08-1711), a burial area (State site 50-30-08-0681), and the remains of an historic fishpond (State site 50-30-08-0680). The State Historic Preservation Division considers all three sites significant under Criterion D. In addition the burial area is considered significant under Criterion E, having importance to native Hawaiians, while the fishpond is considered significant under Criterion B for its association with Debora Kapule. Subsurface trenching in the northern portion of the Coco Palms parcel showed that this area was disturbed by modern construction activities and no cultural deposits or materials were found in this area [17].

Elmore and Kennedy [6] reported on the inadvertent discovery of a single historic period burial in a portion of the Coco Palms parcel. The single set of remains was recovered 60–100 cm below surface within a fine sandy loam deposit.

Bush et al. [3] excavated nine trenches at another coastal parcel. No traditional cultural material was found. Historic debris associated with a previously identified modern house on the parcel was recorded. The investigation revealed that the underlying deposits were clay loam soils over decomposing bedrock. No sand deposits were encountered.

Archaeological investigations in the upland areas of Wailua have been limited. In 1982, Tomonari-Tuggle [21] conducted an archaeological reconnaissance survey along the Hanalei-Kawaihau ridge between Halele‘a and Puna (Kawaihau) districts. No historic properties were found in the area which lies more than 5 mi. northwest of the project site. In 1991, State Parks archaeologists conducted an archaeological survey and mapping in an area designated as the Kauakahi Adze Workshop (Site 50-30-07-4000) within the Keahua Arboretum, located ca. 3.5 mi. northwest of the ‘Ōpaeka‘a Falls Land Co. parcels [23]. Archaeological excavations conducted in 1988 determined the site was a surface scatter with little depth. The 1991 investigations noted a few scattered flakes along the ground surface within a pond feature at the arboretum.

3 Archaeological Survey

Pedestrian survey of the ‘Ōpaeka‘a Falls Land Co. parcels encountered three distinct environments, each with its own potential for archaeological remains. These are: (i) maintained grounds; (ii) horse pasture; and (iii) ‘Ōpaeka‘a Stream and its margins.

Within the southeastern parcel, TMK: (4) 4-2-003:012, where the Kuhns residence is located, the survey environment was dominated by a maintained yard with grass lawn, fruit and other trees, and ornamental shrubs (fig. 4). The slope down to ‘Ōpaeka‘a Stream is less well tended, but mostly clear of vegetation except in pockets at the stream bank and on the extremely steep slope immediately west of the house. Along Kuamo‘o Road, the lawn is bordered by a row of trees with a thick understory of weedy growth that is not maintained. All of these areas were surveyed on foot, with the archaeologists spaced at variable distances sufficient to ensure complete coverage of the ground surface. In addition, a steep bank next to the stream at the southeastern end of the parcel was cleared of vegetation and the sediment faced roughly with a machete to search for evidence of buried cultural deposits. The exposed face showed a strong brown clay from top to bottom, with no evidence of a former land surface, cultural deposit, or agricultural soil such as might be found in a *lo‘i kalo*. No archaeological remains were found during the survey of TMK: (4) 4-2-003:012.

*lo‘i
kalo*

The second type of survey environment was found in the other two parcels, TMK: (4) 4-2-003:065 and 066, both of which are given over primarily to pasture for horses (fig. 5). Most of this land is covered with short grasses and scattered small shrubs, primarily *lantana*. There is excellent visibility of the ground surface within the pasture areas. The pasture is typically bordered by mature trees, primarily *hau*, along the stream bank. The steeper portions of the pasture, especially along the north bank of ‘Ōpaeka‘a Stream at the west end of the ‘Ōpaeka‘a Falls Land Co. parcels, are typically covered by tall trees of various types with a locally-variable understory of shrubs and small trees where ground visibility ranges from fair to good.

hau

The pastures were surveyed for evidence of traditional architecture or scatters of cultural remains that might indicate uses of the land prior to its being used as pasture. This included the grass-covered pasture lands as well as the areas where trees were dominant. In addition, stratigraphic exposures in small erosional features in both parcels were investigated for evidence of a paleosol or cultural deposit. These all showed a simple, natural stratigraphy with no evidence of cultural deposition (fig. 6). The surfaces of



Figure 4. Grounds of the Kuhns residence, looking northwest.



Figure 5. Overview of pasture land in TMK: (4) 4-2-003:066, looking southwest. Archaeologist Tom Dye is in the mid-ground for scale.

erosion scars were also investigated, but these, too, yielded no evidence of traditional Hawaiian activities. No archaeological remains were found in any of these lands.

The final type of environment in the 'Ōpaeka'a Falls Land Co. parcels was 'Ōpaeka'a Stream and its margins. Survey of the stream was directed primarily toward evidence for water control devices, such as *'auwai*, that might indicate a former use of the stream water for irrigating either agricultural fields, *lo'i kalo*, or fishponds, *loko i'a*.

'auwai
lo'i kalo
loko i'a



Figure 6. Typical stratigraphic profile exposed in pasture land at TMK: (4) 4-2-03:065. The scale is marked in decimeters.

‘Ōpaeka’a Stream enters the ‘Ōpaeka’a Falls Land Co. parcels at its northwest corner, following a southerly course. The stream makes a nearly right-angle turn to the west, making a *U*-shaped bend south through the middle of the ‘Ōpaeka’a Falls Land Co. parcels before resuming its southerly course out of the property and toward ‘Ōpaeka’a Falls. Through most of its path through the property, the stream is fairly deeply cut, with steep, high banks (fig. 7). In this situation, an *auwai* designed to bring water to the pasture lands would need to be long, starting at a point well outside the ‘Ōpaeka’a Falls Land Co. parcels. Such an *auwai* would be located on the land above the stream bank where it would be readily visible; no evidence of such an *auwai* was found.

The low marsh land found next to the stream would be easier to water and it is possible that a short *auwai* could bring a controlled flow of water to the marsh land for use in agriculture or aquaculture. There are several small patches and one fairly wide expanse of marsh land in the ‘Ōpaeka’a Falls Land Co. parcels. One of the small patches is shown in figure 7, where the nature and condition of the vegetation indicates that the stream flows over the marsh land on occasion. This would seem to be a fairly high risk environment for either agriculture or aquaculture, where water control is essential for productive success. The large expanse of marsh land is on the west bank of the river as it finishes its *U*-shaped bend, directly opposite the Kuhns residence. Here, just past the bend where the stream begins to flow east, is a dry channel about 2 m wide leading from a ponded section of the river into the marsh land (fig. 8). This channel runs for about 35 m before making a nearly 90 degree turn to the left, after which it becomes shallow and intermittent, eventually disappearing completely. The channel itself yielded no clear evidence of having been constructed by man and there is no surface evidence within the marsh land for terracing of the type associated with *lo’i kalo*, nor of particularly marshy ground that might indicate the former presence of a *loko i’a*, though evidence for either type of facility might conceivably be buried by an alluvial deposit. On the basis of



Figure 7. 'Ōpaeka'a Stream environment, looking southeast. Archaeologist Tom Dye is standing in the mid-ground to provide scale. Note the high, steep stream bank at the left and also behind Dye to the right. Dye is standing on low, marshy ground typical of the marsh land found intermittently along the stream through the 'Ōpaeka'a Falls Land Co. parcels.

surface investigation, it was not possible to determine whether this landscape feature is a natural channel formed during periods of high stream flow, or whether it represents a traditional Hawaiian facility designed to control the flow of water into an agricultural field or aquacultural pond.



Figure 8. Possible 'auwai, looking east. Randy Wichman stands inside this feature of the landscape for scale.

The only unambiguous evidence for traditional Hawaiian use of the 'Ōpaeka'a Falls Land Co. parcels was pointed out to us by Randy Wichman. It consists of a series of

abrading basins of different sizes and shapes on two or three large boulders located in the middle of 'Ōpaeka'a Stream, immediately upstream of the pond created by the ford north of the Kuhns residence (fig. 9). These abrading basins have been assigned state site number 50-30-08-5029 (fig. 10).



Figure 9. Overview of site 50-30-08-5029, looking west upstream. Randy Wichman is removing algae from an underwater abrading basin. Two small abrading basins (see fig. 13) are next to the white bucket. A boulder with three cup-sized abrading basins (see fig. 11) is behind the bucket.

At the upstream end of the site is a large boulder with three cup-sized abrading basins (fig. 11). The northern-most cup-sized abrading basin is 13 cm in diameter at the top and approximately 6 cm deep. The two basins on the south end of the boulder are different sizes. The smaller of the two is 11 cm in diameter at the top and relatively shallow, approximately 3 cm deep. The larger one is 17 cm in diameter and approximately 7 cm deep. It is bordered on the southeast by a poorly defined area about 20 cm in diameter that also appears to have been abraded.

South of this is a large boulder with five abrading basins, two of which were fully underwater and one partially underwater at the time they were recorded. A groove about 60 cm long is at the stream edge of the boulder, completely underwater at the time it was recorded (fig. 12). Next to it are two large, shallow basins next to one another, each about 40 cm in diameter. Just on the other side of a crack in the boulder are two other abrading basins. The one on the south is deeper and better defined, with a diameter of approximately 34 cm (fig. 13). Immediately north is a shallower, smooth area approximately 28 cm in diameter.

On the last boulder before the pond behind the ford is a possible cup-sized abrading basin (fig. 14). The interior of this basin is a bit rougher than its counterparts on boulders

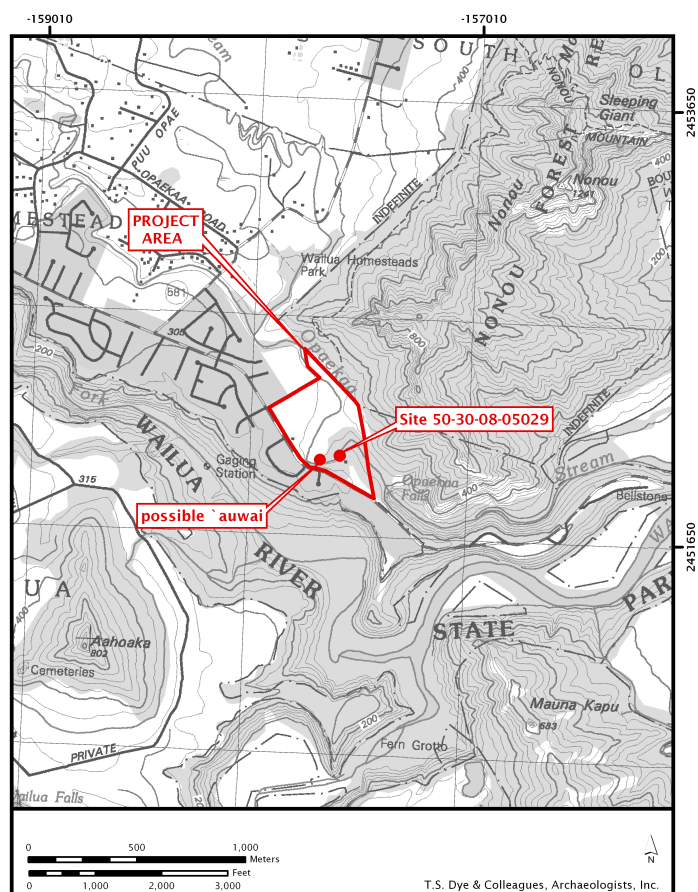


Figure 10. Location of site 50-30-08-05029 and the possible 'auwai on a portion of the USGS 1996 Kapaa Quadrangle.

upstream and it might represent a natural feature of the boulder rather than something that was deliberately abraded into the boulder.

4 Cultural Impact Assessment

The cultural impact assessment has three objectives:

1. Determine the identity and scope of valued cultural, historical, or natural resources on the parcel, including the extent to which traditional and customary native Hawaiian rights are exercised there,
2. Determine the extent to which those resources—including traditional and customary native Hawaiian rights—will be affected or impaired by the proposed Opaekaa Falls Consolidation and Resubdivision Action (S-2006-47); and



Figure 11. Three cup-sized abrading basins, looking south. The scale is marked in decimeters.

3. Propose a feasible action, if any, to be taken to reasonably protect native Hawaiian rights if they are found to exist.

An ongoing process of identification of cultural resources and evaluation of potential effects that development might have on these resources has included the following:

Archaeology Archaeological work to identify historic sites is reported in section 3. There is one traditional Hawaiian site—a series of abrading basins on boulders in the stream—at the ‘Ōpaeka’a Falls Land Co. parcels. This site is not used today. It was probably last used sometime before the nineteenth century when steel tools began to replace the stone tools that were likely polished and sharpened in the abrading basins.

Literature Search Documents and materials from various archives relating to the land use history of the parcel are reviewed in section 2. Although these materials clearly indicate the traditional importance of Wailua and mention several famous *ali‘i* and well-known *kupua*, they did not yield any specific information about traditional use of the ‘Ōpaeka’a Falls Land Co. parcels.



Figure 12. Underwater abrading basins, looking south. Note the straight groove, horizontal in the photograph, underwater at the stream edge of the boulder. Two shallow, large basins are also shown; one next to the straight groove is underwater and the other, adjacent to it, is mostly out of the water at the bottom of the photograph. The scale is marked in decimeters.



Figure 13. Large abrading basins, overhead view. North and downstream are to the left in the photograph. The scale is marked in decimeters.



Figure 14. Possible cup-sized abrading basin. The scale is marked in decimeters.

Interviews Project-specific interviews were conducted with Randy Wichman in March 2009. Wichman has a long-term interest in Kaua'i Island history. He is familiar with the legends of Wailua and has a first-hand knowledge of the named places in the vicinity of the 'Ōpaeka'a Falls Land Co. parcels. He lived for several years in the Kuhns residence, and during that time he explored the 'Ōpaeka'a Falls Land Co. parcels and knows the land intimately. During the interview, Wichman did not mention any traditional and customary native Hawaiian rights that were exercised with respect to any valued cultural, historical, or natural resources at the 'Ōpaeka'a Falls Land Co. parcels.

The subdivision and reconsolidation of the 'Ōpaeka'a Falls Land Co. parcels poses no potential cultural impacts. No native Hawaiian rights are known to be associated with the 'Ōpaeka'a Falls Land Co. parcels, so no actions need to be taken to protect them.

5 Conclusions

Archaeological survey of the 'Ōpaeka'a Falls Land Co. parcels was sufficient to determine that archaeological sites are absent through most of the property. The grounds of the Kuhns residence and the pastures on either side of 'Ōpaeka'a Stream all sit at elevations too high above the stream to be easily watered for irrigated agriculture in *lo'i kalo*. No evidence was found of the long *'auwai* that would be needed to bring water to these areas. In addition, exposed stratigraphic profiles show no evidence of traditional Hawaiian activities associated with either agriculture or habitation. Thus, we believe that archaeological sites are absent in all of the land in the 'Ōpaeka'a Falls Land Co. parcels outside of the building setback line and drainageway.

The three buildings on the 'Ōpaeka'a Falls Land Co. parcels were inventoried by Mason Architects, Inc., including the Kuhns residence, a servants' quarters, and a garage. The architects have determined that the Kuhns residence and the servants' quarters are both eligible for listing on the National Register of Historic Places, as described in appendix A.

A cultural impact assessment determined that no native Hawaiian rights are known to be associated with the 'Ōpaeka'a Falls Land Co. parcels, so no actions need to be taken to protect them.

Evidence of traditional Hawaiian use of the 'Ōpaeka'a Falls Land Co. parcels is found today as a series of abrading basins on boulders in 'Ōpaeka'a Stream, which have been designated state site 50-30-08-5029. Basins such as these were used to polish, sharpen, and shape basalt adzes and other stone woodworking tools. Their presence here suggests that other traditional activities were taking place in the vicinity, but no definite evidence of that activity could be found. One possibility is use of the marsh land upstream from the site, which has a shallow channel, possibly man-made, leading into it. The most likely activities carried out here would have been aquaculture in *loko i'a* or agriculture in *lo'i kalo*, but no evidence could be found on the surface today that might indicate that either of those activities took place. Both site 50-30-08-5029 and the possibly irrigated marsh land are within the building setback line and drainageway.

It is worth noting that extensive excavations would likely be needed to determine whether or not the channel into the marsh land was man-made or natural and whether or not agricultural or aquacultural facilities are buried under alluvium in the marsh land. A mechanical excavator of some kind would clearly be needed, with the possible addition of pumps to drain the excavations of water in this low-lying area. This work is not warranted at this time in association with the proposed consolidation and resubdivision action because of the logistics, cost, and possible environmental impacts on 'Ōpaeka'a Stream of excavation in the low-lying marshy area. Instead, it is recommended that SHPD ensure that the following condition, or one similar to it, be imposed as a deed restriction:

In the event that any construction, development or grading within the designated drainageway/building setback areas is proposed, then subsurface archaeological testing for inventory survey shall be carried out at the location of the possible *auwai* and associated low-lying marshy area, and an acceptable report of its results submitted to SHPD prior to the issuance of any permit or entitlement.

A Architectural Inventory Survey Report

The following pages present an architectural inventory survey report prepared by Wendy Wichman of Mason Architects, Inc. The report was produced separately as a portable document format (pdf) file without page numbers. Following the appendix, pagination continues as if the pages of the architectural inventory survey were numbered.

Bibliography

- [1] Beckwith, M. (1970). *Hawaiian Mythology*. Honolulu: University of Hawaii Press.
- [2] Bennett, W. C. (1931). *Archaeology of Kauai*. Number 80 in B. P. Bishop Museum Bulletin. Honolulu: Bishop Museum Press.
- [3] Bush, A. R., G. K. Ida, and H. H. Hammatt (1998, October). *Archaeological Inventory Survey with Subsurface Testing of a One-Acre Parcel on Papaloa Road, Wailua, Kaua'i (TMK: 4-1-05:02)*. Kailua, HI: Cultural Surveys Hawaii.
- [4] Dickey, L. A. (1915). The stories of Wailua, Kauai. The Kauai Papers, Volume 1, No. 9, Kauai Historical Society, Līhu'e, Kaua'i.
- [5] Drennan, T. M. (2008, April). *An Archaeological Inventory Survey Report for the Proposed Wailuā Residential Subdivision Located Adjacent to the Wailuā River State Park Wailuā Ahupua'a, Puna District, Kaua'i Island, Hawai'i TMK: (4) 3-9-002:012, 024, 025 and TMK: (4) 3-9-06:009*. Prepared for Environet, Inc. Honolulu: Scientific Consulting Services.
- [6] Elmore, M. and J. Kennedy (2000). *A Report Concerning the Inadvertent Discovery of Human Remains at Coco Palms Hotel, TMK:4-1-003:007 in Wailua Ahupua'a, Kawaihau District, Island of Kaua'i*. Hale'iwa, HI: Archaeological Consultants of the Pacific.
- [7] Elmore, M. and J. Kennedy (2003, February). *An Archaeological Monitoring Report for the Proposed Kūhiō Highway Drainage Improvements Project at Kapa'a and Anahola (Project #56AC-01-01) Located in Kawaihau District, Island of Kaua'i*. Prepared for Site Engineering. Hale'iwa, HI: Archaeological Consultants of the Pacific.
- [8] Evans, T. J. K. (1918, June). Wailua homesteads, first series, wailua, puna, kauai. Hawaii Territory Survey Register Map No. 2601. Scale 1 in. = 400 ft.
- [9] Giambelluca, T. W. and T. A. Schroeder (1998). Climate. In S. P. Juvik and J. O. Juvik (Eds.), *Atlas of Hawai'i* (Third ed.), pp. 49-59. Honolulu: University of Hawaii Press.
- [10] Hammatt, H. H., R. Chiogioji, G. K. Ida, and V. S. Creed (1996, January). *An Archaeological Inventory Survey for the Kūhiō Highway Widening and Bypass Options Within the Ahupua'a of Wailua, South Olohena, North Olohena, Waipouli & Kapa'a, Island of Kaua'i*. Prepared for Pacific Planning and Engineering. Kailua, HI: Cultural Surveys Hawaii.
- [11] Hammatt, H. H. and D. W. Shideler (2004, April). *Archaeological Assessment of Alternative Routes Proposed for the Lydgate to Kapa'a Bike and Pedestrian Pathway Project Within the Ahupua'a of Wailua, South Olohena, North Olohena, Waipouli, and Kapa'a*. Prepared for Kimura International. Kailua, HI: Cultural Surveys Hawaii.
- [12] Handy, E. S. C. (1940). *The Hawaiian Planter*, Volume 1. Honolulu: Bishop Museum Press.

- [13] Handy, E. S. C. and E. G. Handy (1972). *Native Planters in Old Hawaii: Their Life, Lore, and Environment*. Number 233 in B. P. Bishop Museum Bulletin. Honolulu: Bishop Museum Press. With the collaboration of Mary Kawena Pukui.
- [14] Hoffman, T., D. W. Shideler, C. B. Ohare, J. Fong, and H. H. Hammatt (2005, April). *Archaeological Inventory Survey with Subsurface Testing at the Coco Palms Resort, Wailua Ahupua'a, Puna District, Island of Kaua'i*. Kailua, HI: Cultural Surveys Hawaii.
- [15] Joesting, E. (1987). *Kauai: The Separate Kingdom*. Honolulu: University of Hawaii Press and Kauai Museum Association.
- [16] Kamakau, S. M. (1976). *The Works of the People of Old: Na Hana a ka Po'e Kahiko*. Number 61 in B. P. Bishop Museum Special Publication. Honolulu: Bishop Museum Press. Translated from the Newspaper *Ke Au 'Oko'a* by Mary Kawena Pukui. Arranged and edited by Dorothy B. Barrère.
- [17] O'Leary, O. L. and H. H. Hammatt (2006, August). *Archaeological Inventory Survey Addendum for the Coco Palms Resort, Wailua Ahupua'a, Puna District, Island of Kaua'i* TMK: (4) 4-01-003:004, 005, 007, 011, 017; TMK: (4) 4-01-005:014, 017. Prepared for Wilson Okamoto Corporation. Kailua, HI: Cultural Surveys Hawaii.
- [18] Pukui, M. K., S. H. Elbert, and E. T. Mookini (1974). *Place Names of Hawaii*. Honolulu: University of Hawaii Press.
- [19] Rice, W. H. (1977). *Hawaiian Legends*. Number 63 in Bernice P. Bishop Museum Special Publication. Honolulu: Bishop Museum Press.
- [20] Sato, H. H., W. Ikeda, R. Paeth, R. Smythe, and M. Takehiro, Jr. (1973). *Soil Survey of the Island of Hawaii, State of Hawaii*. Washington, DC: U.S. Department of Agriculture, Soil Conservation Service in cooperation with the University of Hawaii Agricultural Experiment Station.
- [21] Tomonari-Tuggle, M. (1982, September). *An Archaeological Reconnaissance Survey: Summit Camp Radio Station, Kawaihau, Kauai*. Prepared for M & E Pacific. Honolulu: M. J. Tomonari-Tuggle.
- [22] Wichman, F. B. (1998). *Kaua'i Ancient Place-Names and Their Stories*. Honolulu: University of Hawai'i Press.
- [23] Yent, M. and R. Nagata (1991, February 11). Archaeological survey of Clivus Multrum project area Keahua Arboretum, Wailua, Kawaihau District, Kauai. Letter to Michael Buck, Division of Forestry.